July 3, 1945. L. F. SMITH 2,379,757

CORE RETRIEVER

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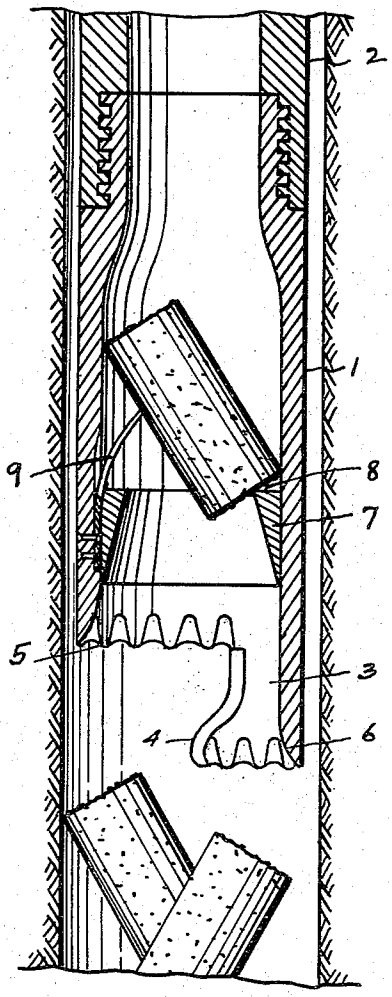



Fig. 1.

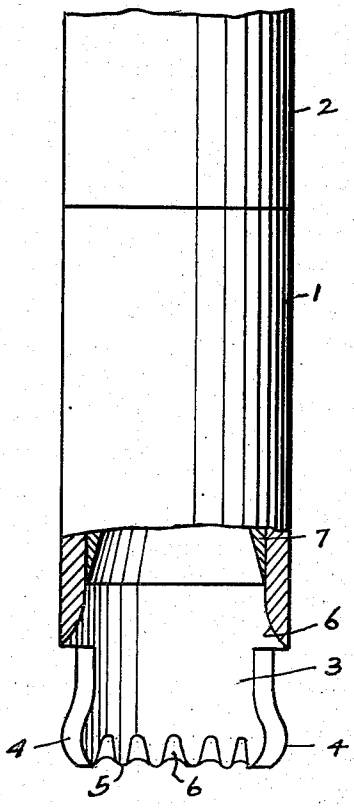



Fig. 2.

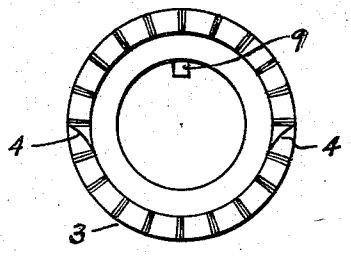



Fig. 3.

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## CORE RETRIEVER

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4 Claims. (Cl. 294—86)

This invention relates to a core retriever.

An object of the invention is to provide a tool of the character described for recovering hard cores that may be left in a bore in the process of core drilling.

In drilling bore holes in the earth it is often desirable to recover cores of the formation encountered. This is particularly true while drilling hard formation such as coal or other similar formation. Cores are also sometimes taken in drilling oil wells where hard formation is encountered.

In carrying on this work coring tools are used for forming the core and these tools are often constructed to retrieve the core formed; but in many cases the core is lost, that is, dropped back into the bore and in such case the tool herein described may be used for retrieving such cores or samples. However, the core retriever herein described may be also used for both forming and retrieving the core.

A further object of the invention is to provide a tool of the character described that has been specially formed to recover core or samples of hard formation in the bottom of the well and direct the same into the tool and trap the same in the tool so that they may be withdrawn to the ground surface.

With the above and other objects in view the invention has particular relation to certain novel features of construction, arrangement of parts and use, an example of which is given in this specification and illustrated in the accompanying drawing, wherein:

Figure 1 shows a vertical, sectional view of the tool showing the core retainer therein.

Figure 2 shows a side elevation, partly in section, taken at right angles to the view shown in Figure 1; and

Figure 3 shows a bottom end view.

Referring now more particularly to the drawing wherein like numerals of reference designate the same parts in each of the figures, the numeral 1 designates the retriever barrel whose upper end may be reduced and coarsely threaded externally for connection to the lower end of the operating string of pipe 2 whose lower end is coarsely threaded internally for connection to the barrel.

The lower end of the barrel, on one side, has the downward arcuate extension 3 whose lower end has the extended wings 4, 4, one on each side.

The lower end of the barrel, as also the lower end of the extension 3, are provided with the inside teeth 5 and between said teeth are outwardly beveled as at 6.

Within the lower end of the barrel there is a retainer ring 7, suitably secured therein, and whose inner side converges upwardly thus providing an upwardly facing, annular, retainer shoulder 8.

Within the barrel opposite the extension 3 there is a retainer finger 9 which is flexible. The lower end of this finger is secured to the barrel and its upper end is free and inwardly curved.

When it is desired to recover cores left in the bore the tool may be lowered to the bottom of the bore. These cores are usually of much smaller diameter than the diameter of the bore. When the tool is lowered to the bottom of the bore it may be rotated back and forth and the wings 4 will engage around a core and line it up with the barrel and as the barrel is further lowered one of the cores will pass upwardly through the core retainer 7 and the upwardly converging inner side of said retainer will cause the core to assume an angular position in the barrel and its lower end will eventually land on the shoulder 8 and the flexible finger 9 will engage against the side of the core and tend to hold it in position while the tool is being withdrawn. In the illustration shown in Figure 1 there is only one core in the barrel but where there are a number of small cores on the bottom of the bore it may be possible, by a continued rotation and manipulation of the tool while on bottom of the bore, to cause a number of cores to enter the barrel and congest therein so that they will all be retained and they may all be withdrawn at one trip.

What I claim is:

1. A core retriever comprising, a tubular barrel whose lower end has an extension, at one side, which depends beneath the barrel, said extension being arcuate in horizontal cross section and having laterally extended wings at its lower end, an upwardly facing annular shoulder within the lower end of the barrel and a flexible inwardly curved finger in the barrel whose upper end extends above said shoulder and is free.

2. A core retriever comprising, a tubular barrel, a retainer ring within the barrel whose inside converges upwardly and whose upper end forms an annular upwardly facing core retainer, a flexible finger within the barrel whose upper end curves inwardly above the core retainer and is free, the lower end of the barrel having an extension opposite the finger which depends be-

neath the barrel, said extension having laterally extended wings.

3. A core retriever comprising, a tubular barrel, a retainer ring within the barrel whose inside converges upwardly and whose upper end forms an annular upwardly facing core retainer, a flexible finger within the barrel whose upper end curves inwardly above the core retainer and is free, the lower end of the barrel having an extension opposite the finger which depends beneath the barrel, said extension having laterally extended wings, and the lower end of the barrel and extension being serrated.

4. A core retriever comprising, a tubular barrel, a ring secured in the lower end of the barrel whose inside converges upwardly and whose upper end forms an upwardly facing shoulder forming a core retainer, a flexible finger secured within the barrel whose upper end curves inwardly above the core retainer and is free, a downward extension depending from the barrel and which is arcuate in cross section and whose lower end is widened each way forming laterally extended wings which terminate in outwardly beveled edges.

LOUIE F. SMITH.